Science is debating whether the Earth can claim a new continent: Zealandia

By Elle Hunt, The Guardian, adapted by Newsela staff on 02.23.17
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Awana Beach, on the east coast of the Great Barrier Island, lies in the outer Hauraki Gulf of New Zealand. Photo: Ross Land/Getty Images.

Zealandia, a new continent mainly submerged in the southwest Pacific Ocean, might soon be officially recognized by the international scientific community.

A paper arguing for its inclusion as a continent was published in GSA Today, the journal of the Geological Society of America. It states that the vast, continuous stretch of continental crust, which centers on New Zealand, is distinct enough to be considered a separate continent.

The paper's authors argue that the slow way in which the continent was discovered goes to show that even "the large and the obvious in natural science can be overlooked."

"This Is A Big Piece Of Ground"

Zealandia covers about 2 million square miles. Most of it is under water and includes not only New Zealand but also New Caledonia, Norfolk Island, the Lord Howe Island group and Elizabeth and Middleton reefs.

The area is about the same size as the Indian subcontinent. Scientists believe it broke away from Gondwana, the immense landmass that once encompassed Australia, and sank between 60 million and 85 million years ago.

“This is a big piece of ground we’re talking about, even if it is submerged,” said Nick Mortimer, a New Zealand geologist who co-authored the paper.

Geologists have argued in favor of Zealandia being recognized as its own continent on and off over the past 20 years.

The American geophysicist Bruce Luyendyk was the first to apply the name Zealandia to a southwest Pacific continent in 1995. Since then, the paper’s co-authors say, it has had “moderate uptake” but was still not broadly known to international scientists.

Zealandia Has The Geological Goods

Mortimer and his fellow co-authors hail from the GNS Science research institute and Victoria University of Wellington in New Zealand, the Service Géologique of New Caledonia, and the University of Sydney’s School of Geosciences. They argue that Zealandia has the necessary geological elements to be considered a continent.

Mortimer told Guardian Australia that it was the first robust, peer-reviewed scientific paper to define and describe Zealandia, but its findings would offer “nothing new” for most New Zealand geoscientists. “They probably wonder what all the fuss is about.”

He said he and other researchers began to realize it was a submerged continent with the release of a bathymetric map, or topographic map of the ocean floor, in 2002.

“That’s when the penny dropped, really ... From that point, that map was literally our road map for some crosses, just trying to get rocks out of all the four corners of Zealandia that we could, so we could prove up the geology.”

There had been no formal Zealandia project, he said. It had been “a gradual process ... (of) joining the dots. It was a question of confidence, fundamentally, I think, with the accumulation of data and what to do with it.”

Scientific Community Slowly Getting Onboard

Zealandia would be the world’s seventh and smallest continent after Eurasia, Africa, North America, South America, Antarctica and Australia. Europe and Asia are sometimes recognized separately, despite being the same landmass.

“It turns out New Zealand isn’t just a couple of small islands at the bottom of the world,” Fairfax Media New Zealand triumphantly reported.

Barry Kohn, a professor of earth sciences at the University of Melbourne who had done work with Mortimer on Zealandia in the past, said there was a “fair consensus in the scientific community” in favor of its existence. “It’s pretty clear that that whole area is not part of the ocean," he said. "It’s got all the hallmarks of a continent.”

He said rock dredged up from the area was clearly continental crust, “fairly continuous” and defined. Continental crust is thicker, denser and more complex than the rock that makes up oceanic crust. It usually is above water, but sometimes can be submerged below the ocean. More information had been gathered over the past decades to confirm its existence.

“Like anything in science, the penny doesn’t always drop right away. You build up a body of evidence," Kohn said. "It was all once part of a big continent that’s all broken up into little pieces of the puzzle.”

History Will Tell

Despite the evidence in support of it, whether or not Zealandia would come to be widely recognized as the seventh continent depends on history, Mortimer said.

“If you want to name a mountain, there are certain procedures you have to go through to get it formally ratified. With this, it will just come with time," he said. "If Zealandia makes its way into popular culture and onto maps, that’s all the validation that we’ll seek.”

Quiz

1 Read the third paragraph of the article.

> *The paper's authors argue that the slow way in which the continent was discovered goes to show that even "the large and the obvious in natural science can be overlooked."*

Which paragraph below BEST supports the idea that Zealandia would have been recognized as a continent sooner if it had not been "overlooked"?

(A) The area is about the same size as the Indian subcontinent. Scientists believe it broke away from Gondwana, the immense landmass that once encompassed Australia, and sank between 60 million and 85 million years ago.

(B) The American geophysicist Bruce Luyendyk was the first to apply the name Zealandia to a southwest Pacific continent in 1995. Since then, the paper's co-authors say, it has had "moderate uptake" but was still not broadly known to international scientists.

(C) "That's when the penny dropped, really ... From that point, that map was literally our road map for some crosses, just trying to get rocks out of all the four corners of Zealandia that we could, so we could prove up the geology."

(D) There had been no formal Zealandia project, he said. It had been "a gradual process ... (of) joining the dots. It was a question of confidence, fundamentally, I think, with the accumulation of data and what to do with it."

2 Which idea is BEST supported by the following paragraph?

> *Mortimer told Guardian Australia that it was the first robust, peer-reviewed scientific paper to define and describe Zealandia, but its findings would offer "nothing new" for most New Zealand geoscientists. "They probably wonder what all the fuss is about."*

(A) Most geoscientists who have studied the New Zealand area are familiar with the idea of Zealandia.

(B) Mortimer wrote the first paper to describe Zealandia to other New Zealand geoscientists.

(C) Many New Zealand geoscientists do not believe that Zealandia should be made an official continent.

(D) More peer-reviewed scientific papers describing Zealandia are likely to cause a fuss in New Zealand.

3 How does Nick Mortimer believe Zealandia will receive validation as a continent?

(A) through a declaration by New Zealand media

(B) through a vote by New Zealand geoscientists

(C) through ratification by formal procedures

(D) through recognition by the general public

4 Which of the following MOST influenced scientists' conclusion that Zealandia has the characteristics necessary to be called a continent?

(A) the large size of the underwater landmass

(B) the rocks showing it is made of continental crust

(C) the evidence in a scientific paper

(D) the acceptance of the community